

**What is claimed is:**

1       1. A method for inspecting crystal quality of a  
2 polysilicon film, comprising the steps of:  
3             providing a substrate covered by a polysilicon layer;  
4             irradiating a light beam having a predetermined  
5             wavelength through a beam splitter to separate  
6             into a first light beam and a second light beam,  
7             for irradiating the polysilicon layer;  
8             detecting the light intensity of the first light beam  
9             and the light intensity of the second light beam  
10            reflected from the polysilicon layer to achieve a  
11            light intensity ratio; and  
12            monitoring crystal quality of the polysilicon layer by  
13            the light intensity ratio.

1       2. The method as claimed in claim 1, wherein the  
2 substrate is a glass substrate.

1       3. The method as claimed in claim 1, wherein the  
2 light beam is a laser beam and the predetermined wavelength  
3 is about 266~316 nm.

1       4. The method as claimed in claim 3, wherein a split  
2 ratio of the first light beam to the second light beam is  
3 30~40%:70~60%.

1       5. An apparatus for inspecting crystal quality of a  
2 polysilicon film, comprising:

3       a probe light beam having a predetermined wavelength  
4                  for irradiating a polysilicon layer formed on a  
5                  substrate;  
6        a beam splitter for receiving the probe light beam to  
7                  separate into a first light beam and a second  
8                  light beam, which is used for irradiating the  
9                  polysilicon layer;  
10      a first detecting device for detecting the light  
11                  intensity of the first light beam; and  
12      a second detecting device for detecting the light  
13                  intensity of the second light beam reflected from  
14                  the polysilicon layer.

1       6. The apparatus as claimed in claim 5, further  
2       comprising a controlling unit coupled between the first and  
3       second detecting devices to monitor crystal quality of the  
4       polysilicon layer by a light intensity ratio of the first  
5       light beam to the second light beam reflected from the  
6       polysilicon layer.

1       7. The apparatus as claimed in claim 5, wherein the  
2       probe light beam is a laser beam and the predetermined  
3       wavelength is about 266~316 nm.

1       8. The apparatus as claimed in claim 5, wherein the  
2       substrate is a glass substrate.

1       9. The apparatus as claimed in claim 5, wherein a  
2       split ratio of the first light beam to the second light beam  
3       is 30~40%:70~60%.

1        10. A method for controlling crystal quality of a  
2 polysilicon film, comprising the steps of:  
3            providing a first substrate covered by a first  
4              amorphous silicon layer;  
5            annealing the first amorphous silicon layer by a laser  
6              beam with different first predetermined laser  
7              energy densities to form a plurality of  
8              polysilicon regions therein;  
9            irradiating a probe light beam having a predetermined  
10          wavelength through a beam splitter to separate  
11          into a first light beam and a second light beam,  
12          for irradiating the polysilicon regions;  
13          detecting the light intensity of the first light beam  
14          and the light intensity of the second light beam  
15          reflected from each polysilicon region to achieve  
16          a plurality of light intensity ratios;  
17          determining a second predetermined laser energy density  
18          by the light intensity ratios;  
19          providing a second substrate covered by a second  
20          amorphous silicon layer; and  
21          annealing the second amorphous silicon layer by the  
22          laser beam with the second predetermined laser  
23          energy density to form a polysilicon layer on the  
24          second substrate.

1        11. The method as claimed in claim 10, wherein the  
2 first and second substrates are glass substrates.

1        12. The method as claimed in claim 10, wherein the  
2 laser beam is an excimer laser beam.

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1       13. The method as claimed in claim 12, wherein the  
2 first predetermined laser energy densities are about 300~500  
3 mJ/cm<sup>2</sup>.

1       14. The method as claimed in claim 10, wherein the  
2 probe light beam is a laser beam and the predetermined  
3 wavelength is about 266~316 nm.

1       15. The method as claimed in claim 10, wherein a split  
2 ratio of the first light beam to the second light beam is  
3 30~40%:70~60%.

1       16. The method as claimed in claim 10, wherein the  
2 second predetermined laser energy density is one of the  
3 first laser energy densities which can form the polysilicon  
4 layer with the largest grain size.